

**A CHEMISTRY FOR ETCHING QUATERNARY INTERFACE
LAYERS ON InGaAsP MOSTLY FORMED BETWEEN GaAs AND
In_xGa_(1-x)P LAYERS**

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ABSTRACT

A method is provided for etching quaternary interface layers of In_xGa_{1-x}As_yP_{1-y} which are formed between layers of GaAs and InGaP in heterojunction bipolar transistors (HBTs). In accordance with the method, the interface is exposed by etching the GaAs layer with an etchant that is selective to InGaP. The interface is then etched with a dilute aqueous solution of HCl and H₂O₂ that is selective to InGaP. The controlled etching provided by this methodology allows HBTs to be manufactured with more sophisticated, near ideal designs which may contain multiple GaAs/InGaP interfaces.

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